

## LB 220 Calculus III Fall 2015 Course Syllabus

**Instructor:** Robert Bell  
**Office & E-mail:** W-32 Holmes, rbell@math.msu.edu  
**Office Hours:** MW 12:00 p.m.–1:30 p.m. and by appt.  
**Lectures:** MWF 9:10 a.m. - 10:00 a.m. in 135 Akers  
**Recitation for sec. 001:** T 9:10 a.m.–10:00 a.m. in 135 Akers Hall  
**Recitation for sec. 002:** T 8:00 a.m.–8:50 a.m. in 140 Akers Hall  
**Learning Assistants:** Thomas Bolden & Brandon Russell  
**LA's E-mail:** boldenth@msu.edu & russe386@msu.edu  
**Discussion Forum:** <https://piiazza.com/>  
**Course Web Page:** <http://users.math.msu.edu/users/robertbe/lb220fs15.html>

**Textbook (required).** We will use *Calculus: Early Transcendental Functions*, 5th Edition, by Ron Larson & Bruce H. Edwards, ISBN-10:0538735503, ISBN-13:9780538735506, Cengage, 2011.

**Online Homework (required).** You will need to purchase an *Enhanced WebAssign* (EWA) access code for the online homework. You can purchase a code when you first login to WebAssign.

**Piazza (required).** You will receive an e-mail invitation to join our online class discussion forum hosted by Piazza. Please accept the invitation and use the discussion forum to ask questions, form study groups, offer hints, etc.

**Other Web Resources.** I will use Desire To Learn (D2L) only to share updates about your grade in the course. Instead, all course content will be posted on the Course Web Page (see above) that I personally update and maintain. There you can find this document, homework assignments, a course calendar, etc.

**Grading.** To determine your grade for the course, total your points from all graded components, divide by 700 and convert to a percentage. The chart below shows the breakdown and how percentages will be converted to a grade using MSU's 4.0 scale system.

Graded Work		Grading Scale	
Homework	40 points	4.0	90% $\leq x$
EWA	80 points	3.5	84% $\leq x < 90\%$
Worksheets	40 points	3.0	78% $\leq x < 84\%$
Quizzes	40 points	2.5	72% $\leq x < 78\%$
Exams	300 points	2.0	66% $\leq x < 72\%$
Final Exam	200 points	1.5	60% $\leq x < 66\%$
		1.0	55% $\leq x < 60\%$
Total	700 points	0.0	$x < 55\%$

**Grading Criteria.** All of your work in the course will be graded according to three criteria:

1. Did you **effectively communicate** your reasoning and methods?
2. Does you **completely answer** the question posed?
3. Does you **correctly answer** the question posed?

**Topics.** LB 220 is an introduction to the differential and integral calculus of vector-valued functions and functions of two or more variables. The overarching theme is to generalize results from single variable calculus to these new classes of functions. The major topics are vectors & vector-valued functions, functions of several variables, partial derivatives, multiple integrals, vector fields & line integrals, and vector calculus (Green's, Gauss's, and Stokes's Theorems). The methods developed in the course will be applied to problems such as motion & change in two and three dimensions, optimization (e.g. maximizing efficiency) of functions of several variables, and the formulation of principles of physics in terms of vector calculus. We will cover most of the topics in chapters eleven through fifteen of the textbook.

**Learning Objectives.**

1. Acquire proficiency in solving calculus problems. This includes mastering computational methods, interpreting graphs, drawing conclusions from computations, and setting up complex/multi-step problems.
2. Acquire experience in applying calculus to the solution of problems in the natural and social sciences.
3. Learn how to use abstract reasoning to recognize and solve collections of problems which fall into the same category.
4. Develop the skill of communicating mathematical ideas in writing.
5. Acquire experience in working with others to solve math problems.

**Exam Dates.** There will be three midterm exams during the semester and a comprehensive final exam on the date scheduled by the university.

Exam I	Friday, October 2
Exam II	Wednesday, October 28
Exam III	Monday, November 23
Final Exam	Thursday, December 17, 7:45 p.m.–9:45 p.m.

Exams are written and completed in class without the aid of the textbook, notes, calculators, or similar materials. You may request a make-up exam in advance (by giving at least 3 days notice) if you will be absent for university business or religious observances. If you miss an exam (e.g. last minute illness, oversleeping), then I will use questions on similar topics which appear on the final exam to determine a grade for the missed exam.

**Attendance Policy.** You are expected to attend all of the lectures and recitations. If you are absent for in-class graded work without a valid excuse, you will receive a score of zero for the assignment.

**Valid Excused Absences.** You may be excused from an assignment or be granted an extension or make-up exam or quiz if you are absent— with advance notice of at least two days— for university business, religious observances, or health concerns. For last minute emergencies, whether or not the excuse is valid will be the decision of the instructor. Please do not ask the LAs for make-up quizzes; they do not have the authority to grant these.

**Homework.** On a typical week there will be one homework assignment due; some weeks are atypical (e.g. the first week and some exam weeks). Each homework assignment has two problems. At least one of the problems will be representative of an exam question. You should first work through several similar textbook problems and compare your answers with those in the back of the textbook. Then solve the assigned problem and carefully and neatly write your solution on a single piece of paper and write your name at the top. Also list any other students you worked with on this problem. Budget one hour per week for these assignments.

Each problem you solve will be assigned a score as follows: 0 = unacceptable, 1 = problem attempted, 2 = problem solved with minor errors, 3 = problem solved correctly, 4 = problem solved correctly and the solution is well-written. There will be eleven assignments in all; thus, the maximum possible total score is  $11 \times 4 = 88$ . To determine your homework grade, use the following:

$$\text{homework points} = \text{total score} \div 2$$

If your grade is over 40 points, then it will be reduced to 40 points.

**Enhanced WebAssign (EWA).** On a typical week there will be two EWA assignments due; some weeks are atypical (e.g. the first two weeks). Each assignment has fifteen problems. You should budget 3–4 hours per week per assignment. Each problem is assigned a score of 0 or 1. The system allows for five attempts on most problems. There will be thirty-one assignments in all; thus, the maximum possible total score is  $31 \times 15 = 465$ . To determine your EWA grade use the following formula:

$$\text{EWA points} = \text{total score} \times 80 \div 435.$$

If your grade is over 80 points, then it will be reduced to 80 points.

**Worksheets.** There will be eleven in-class group worksheets during the semester. Worksheets are due at the end of class. Each worksheet will be assigned a score in the range 0–4. Your worksheet grade is determined as follows:

$$\text{worksheet points} = \text{total score}.$$

If your grade is over 40 points, then it will be reduced to 40 points.

**Quizzes.** There will be eleven quizzes during the semester. Quizzes occur during recitation. Each quiz will be assigned a score from 0–4. Your quiz grade is determined as follows:

$$\text{quiz points} = \text{total score}$$

If your grade is over 40 points, then it will be reduced to 40 points.

**Exams.** There will be three in-class exams during the semester, each lasting an entire 50 minute class period. Each exam is worth 100 points. Your exam grade is the total of these scores.

**Final Exam.** On the date of the university scheduled final exam, there will be a 2 hour in-class final exam. The final exam is worth 200 points.

**Ungraded Work.** To be successful in this course, you must—in addition to completing the graded work—regularly read the textbook, test your understanding by solving textbook exercises (and checking your answer with those in the back of the textbook), and review prerequisite topics when they are not familiar. I will regularly recommend textbook problems for you use to test your understanding of the material.

**Resources for Success.** Please utilize office hours, the discussion forum (Piazza), and the math help room on the 2nd floor of East Holmes. Tips for success and advice on how to succeed in this course will be provided in a separate document and will be posted on both Piazza and the Course Web Page.

**Calculator Policy.** The use of calculators is not be permitted on any of the exams or quizzes. Moreover, approximate answers will be penalized when an exact answer can be obtained. However, you are welcome to use your calculator or a computer to test your understanding while studying outside of class or working on homework assignments. But, your submitted solutions must not rely upon calculations done by a calculator or a computer unless this is specifically allowed in the instructions for the assigned homework problem.

**Students with Disabilities.** Please contact the MSU Resource Center For Persons with Disabilities (RCPD), <http://www.rcpd.msu.edu/>, if you require special accommodations, and then schedule an appointment to meet with me.

**Academic Honesty Policy.** Cheating in any form will not be tolerated and will be reported to the deans of the college. You will receive a zero on any assignment in which there is a case of cheating. This includes, but is not limited to, plagiarism, failure to give proper citations, and copying another's work. If you are preparing an assignment and have a question about whether you are adhering to this policy, please ask the instructor. If you work on an assignment with other students, you must give credit to your collaborators. A copy of the Lyman Briggs College Honor Code can be found at [http://www.lymanbriggs.msu.edu/current\\_students/academics/AcademicPolicies.cfm](http://www.lymanbriggs.msu.edu/current_students/academics/AcademicPolicies.cfm).